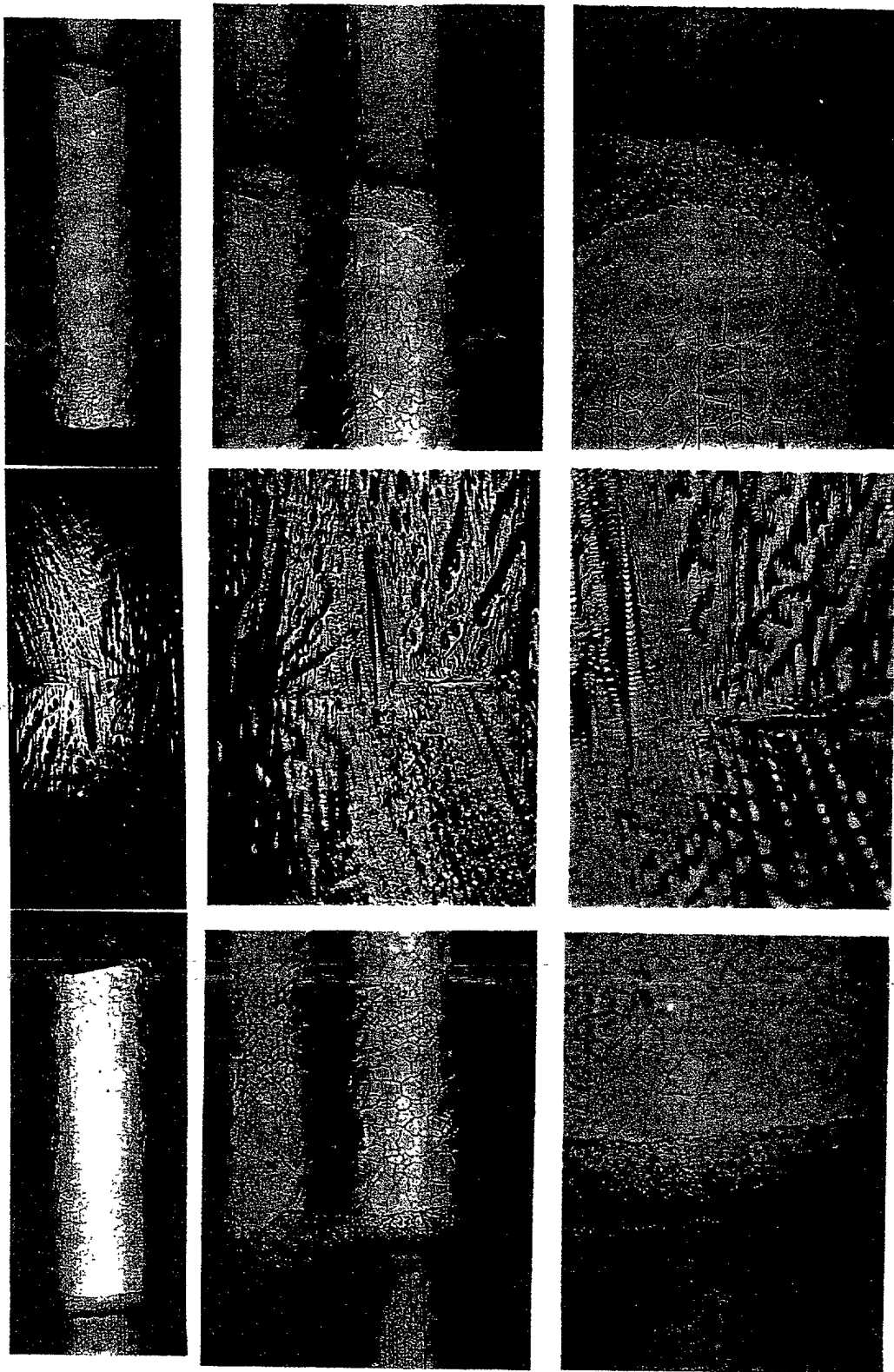


DOWNSTREAM
HEAT - AFFECTED PART

WELDED PART

UPSTREAM
HEAT - AFFECTED PART
$$\times 50$$
 $\times 100$

x 200

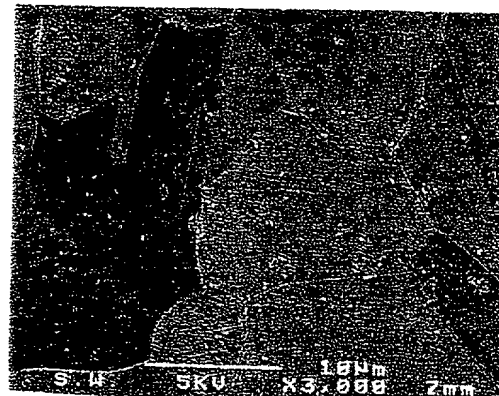
Fig. 2

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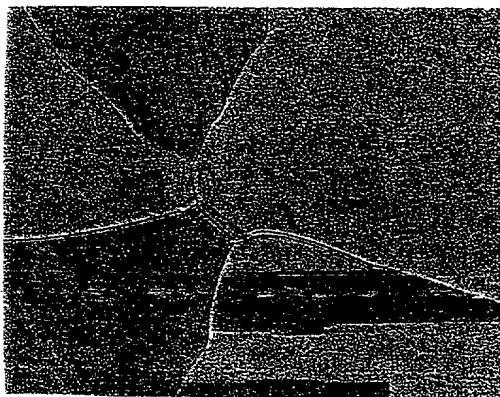
DOWNSTREAM



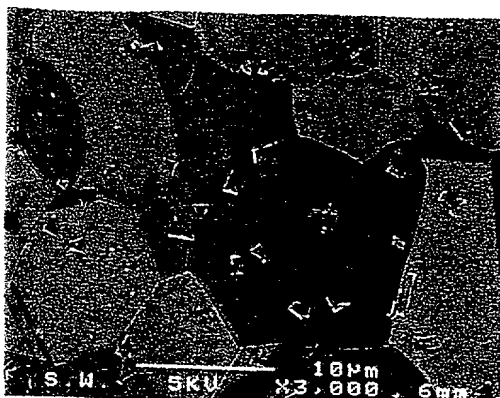
5mm



3mm



3mm



5mm

UPSTREAM



WELDED PART

[BACK SHIELD GAS :
100 % Ar]

PARTICLE MEASUREMENTS AT WELDED PARTS

AT WELDING COMDITIONS (30rpm \times 1rev. BEAD WIDTH 1mm) 9 WELDED SPOTS

FLOW RATE: 0.1cf/min (U - N₂) , PARTICLE MEASUREMENT : 0.1 μ m OR LARGER

BASE METAL	STAINLESS STEEL TUBU SUBJECTED TO FLUORIED PASSIVATION TREATMENT				REGULAR STAINLESS STEEL
	NO WELDING	CONVENTIONAL WELDING METHOD	WELDING AFTER FILM REMOVAL WITH HOT WATER (80°C)	WELDING AFTER FILM REMOVAL WITH 0.5%HF/ 10%H ₂ O ₂	WELDING METHOD WITH 5% ADDED H ₂
NO HAMMERING (10min)	0	0	0	0	0
WITH HAMMERING (10min)	0	60	0	0	0

Fig. 4

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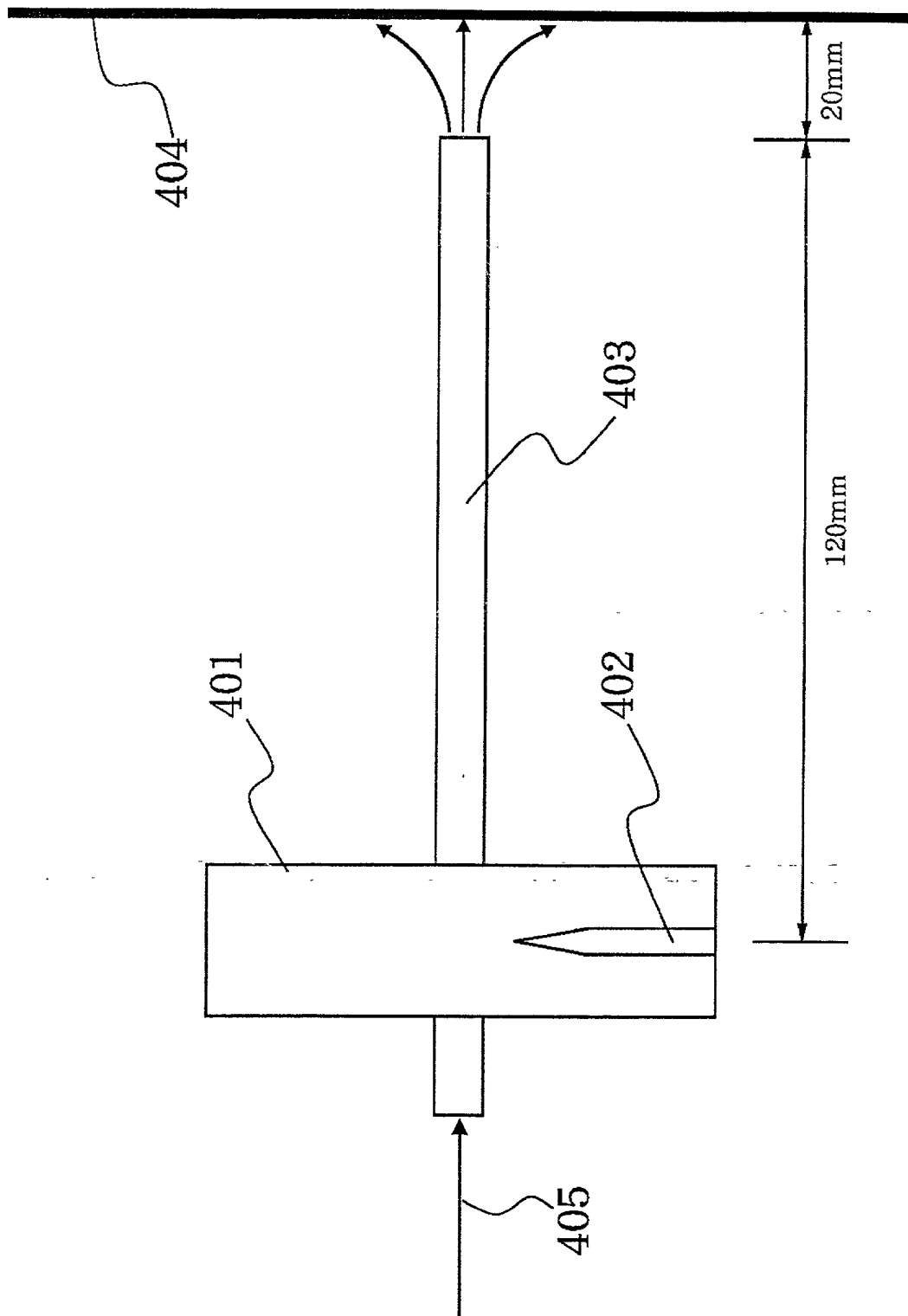
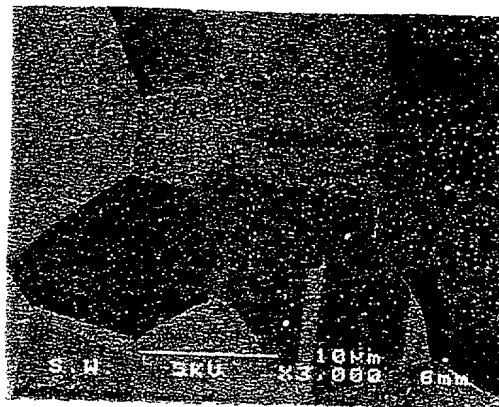


Fig. 5

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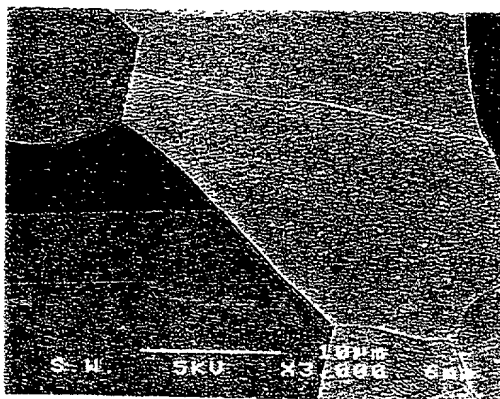
DOWNSTREAM



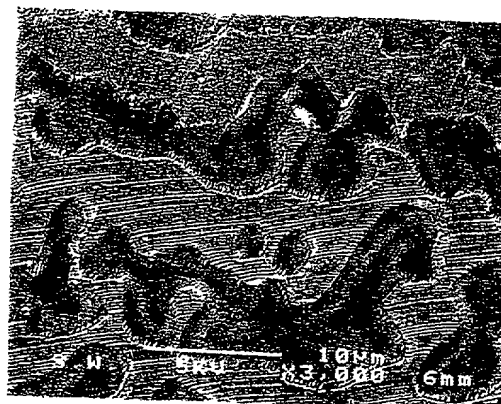
5mm



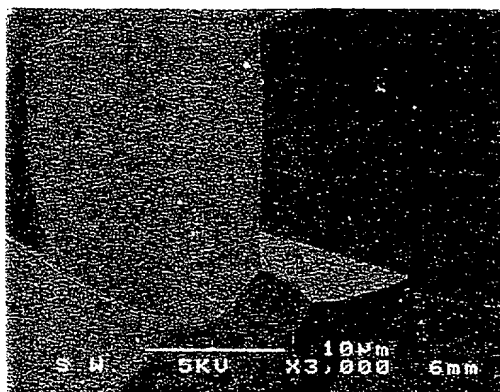
3mm



3mm



WELDED PART



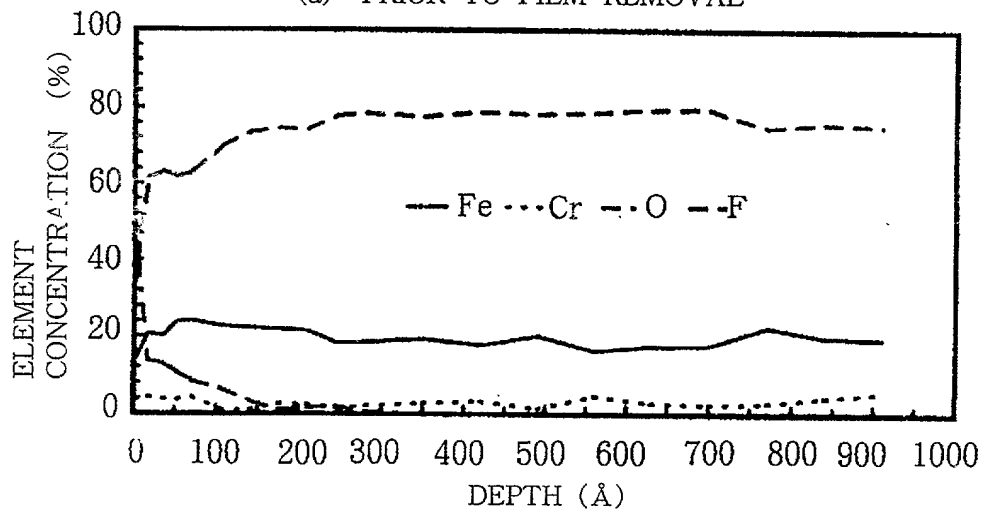
5mm

UPSTREAM

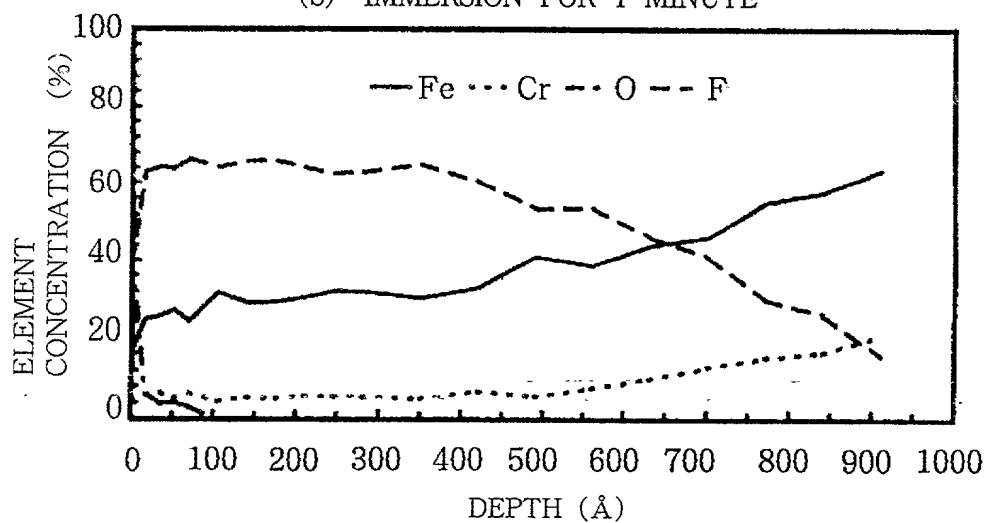
[BACK SHIELD GAS :
5 % H₂/Ar]

REMOVAL OF FLUORIDE PASSIVATED
FILM USING HOT WATER (80°C)

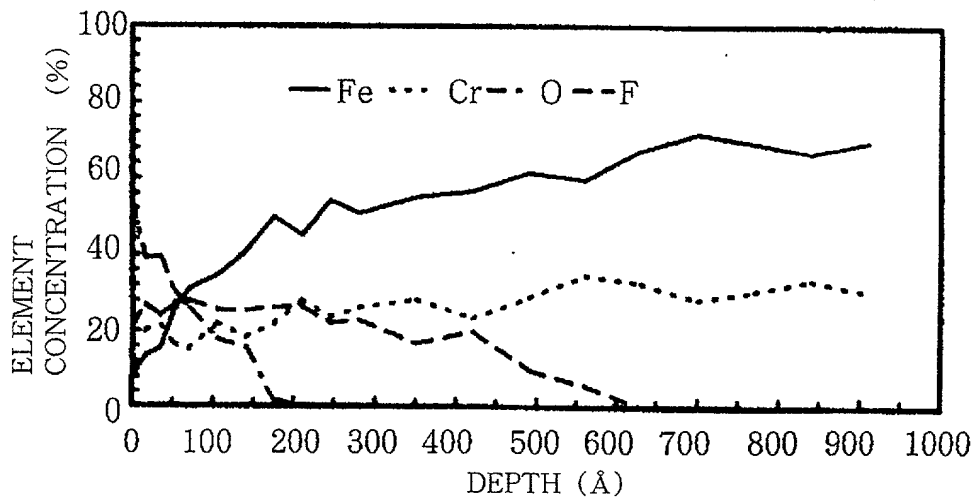
(a) PRIOR TO FILM REMOVAL



(b) IMMERSION FOR 1 MINUTE

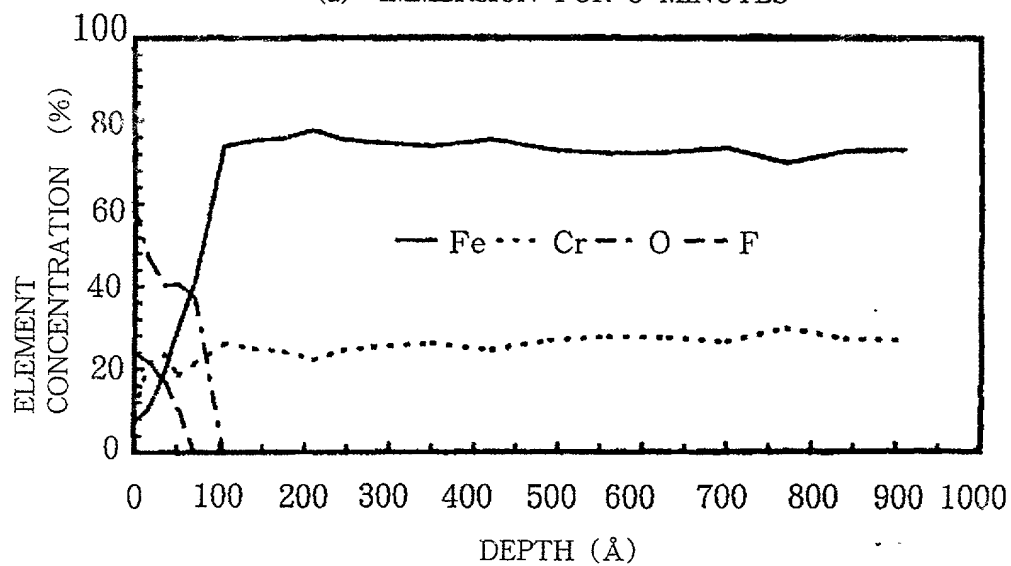


(c) AFTER IMMERSION FOR 3 MINUTES

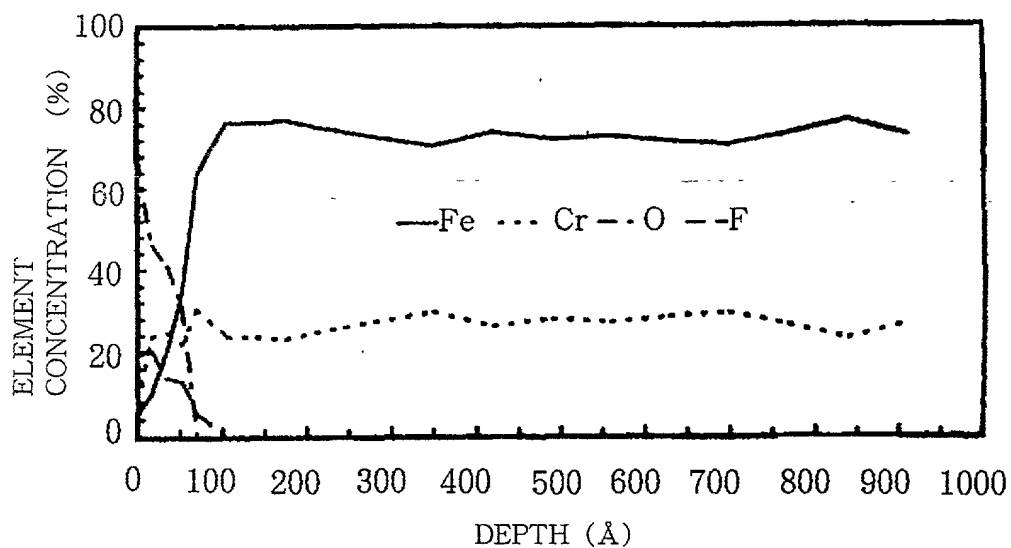


REMOVAL OF FLUORIDE PASSIVATED
FILM USING HOT WATER (80°C)

(a) IMMERSION FOR 5 MINUTES



(b) IMMERSION FOR 10 MINUTES



F i g . 8

(IMMERION FOR MINUTES IN
80°C ULTRAPURE WATER)

UPSTREAM

HEAT - AFFECTED PART

WELDED PART

DOWNSTREAM

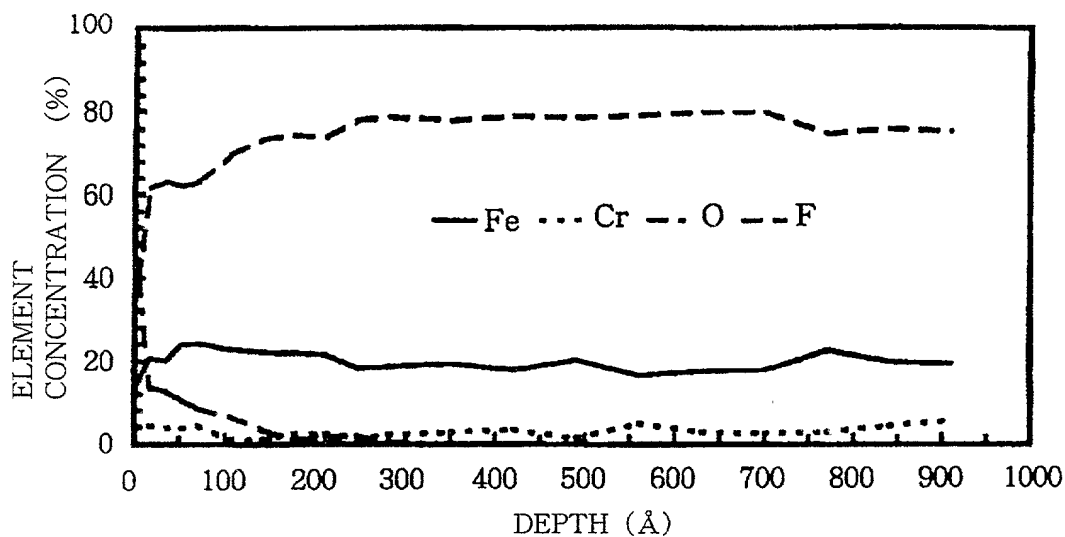
HEAT - AFFECTED PART

$$\times 50$$
 $\times 100$

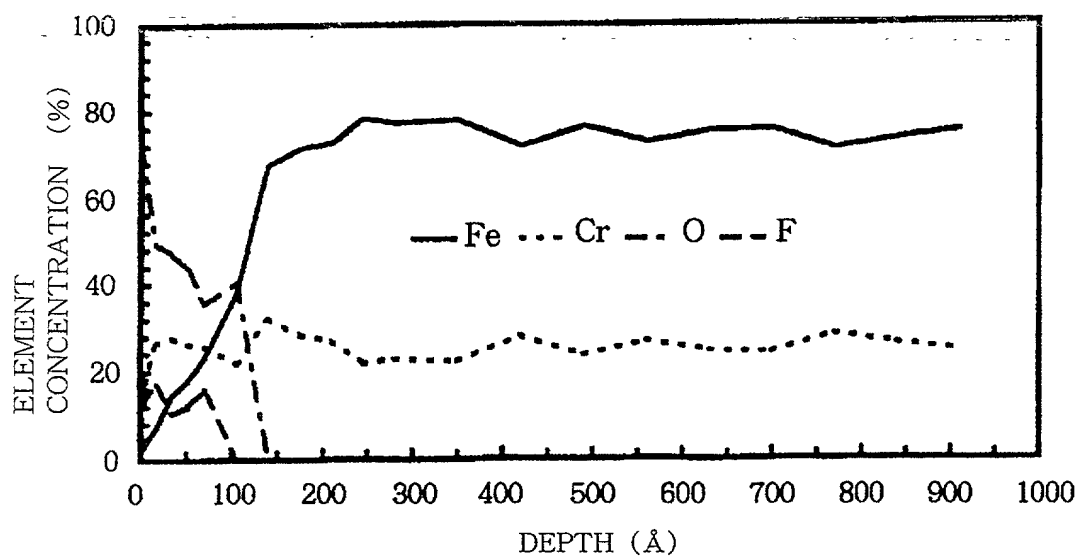
x 200

REMOVAL OF PASSIVATED FILM USING A MIXED
AQUEOUS SOLUTION OF 0.5% HYDROFLUORIC
ACID AND 10% HYDROGEN PEROXIDE

(b) PRIOR TO FILM REMOVAL



(b) IMMERSION FOR 10 MINUTES



CONFIDENTIAL

(IMMERION FOR 10 MINUTES IN
A MIXED AQUEOUS SOLUTION
OF 0.5% HYDROFLUORIC ACID
AND 10% HYDRGEN PEROXIDE)

DOWNSTREAM
HEAT - AFFECTED PART

WELDED PART

UPSTREAM HEAT - AFFECTED PART

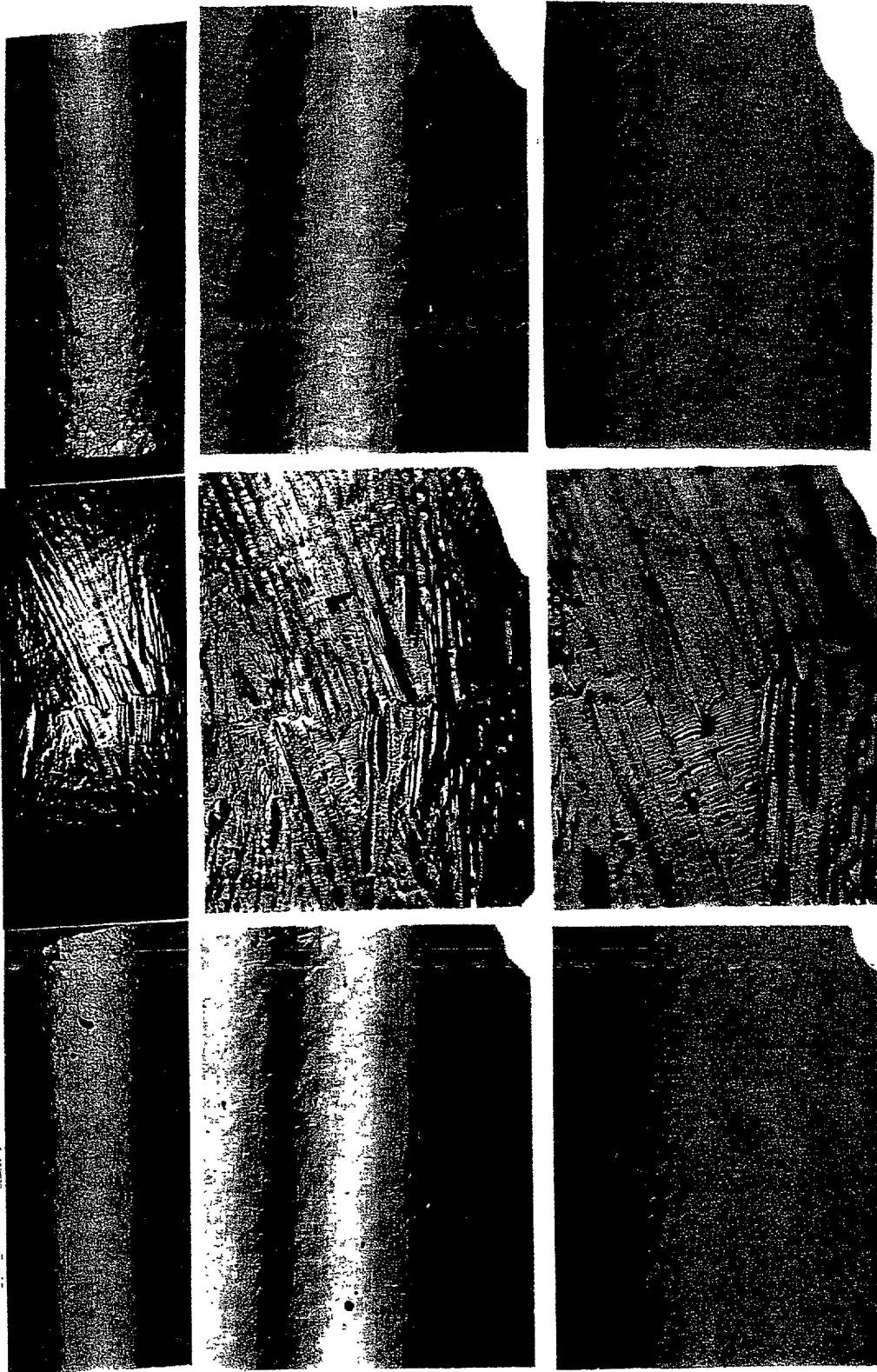
× 50

× 100

× 200

F i g. 1 0

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FLUORIDE PASSIVATION RETREATMENT
OF THE WELDED PART
1 % F₂/N₂, 20cc/min, 200C × 30min

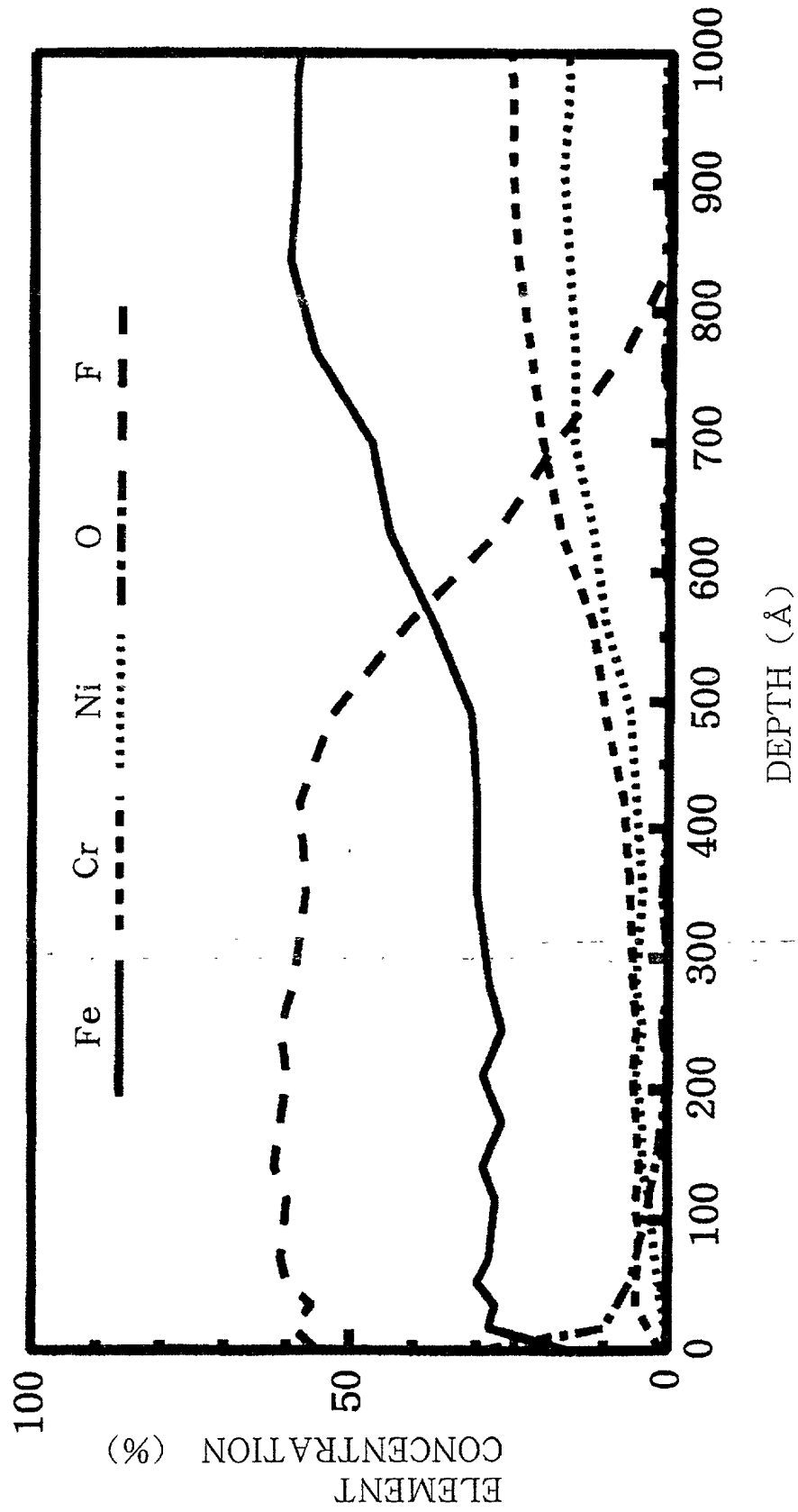
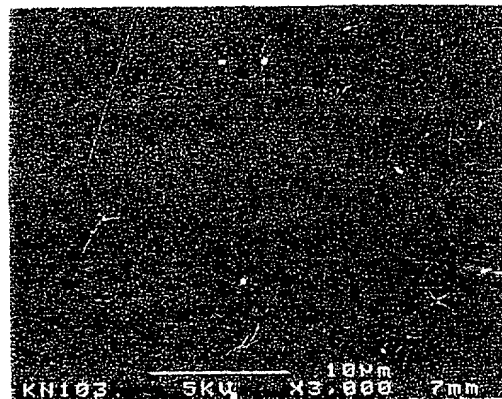


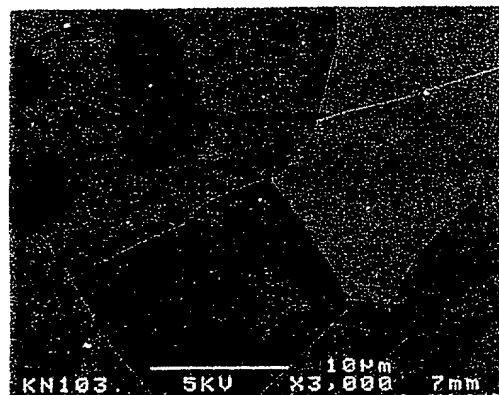
Fig. 12

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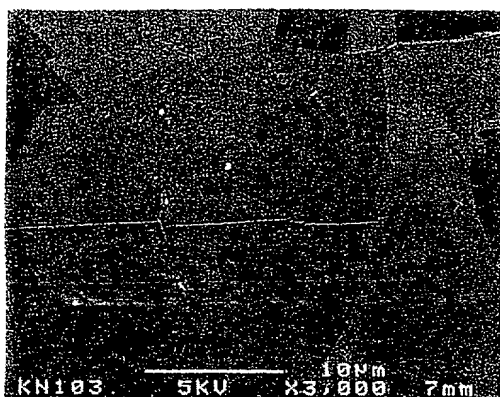
DOWNSTREAM



5mm



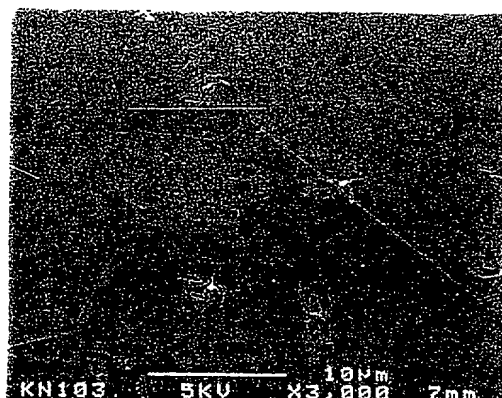
3mm



3mm



WELDED PART



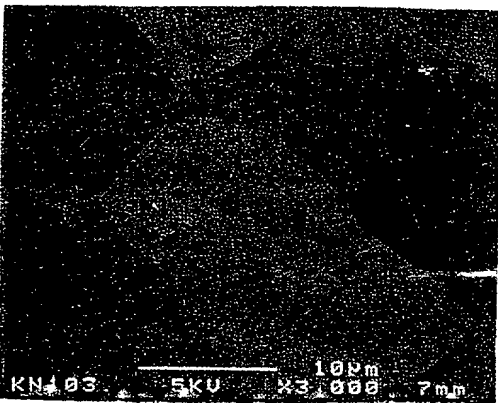
5mm

UPSTREAM

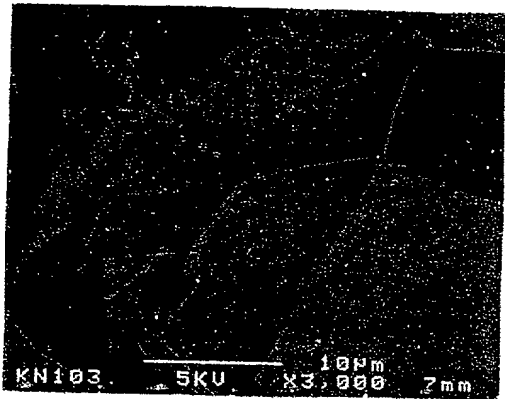
[BACK SHIELD GAS :
0.1 % H₂/Ar]

Fig. 13

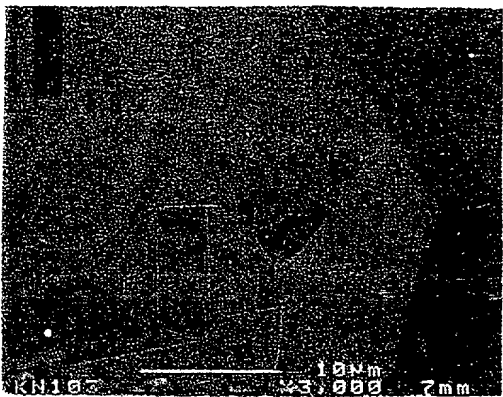
DOWNSTREAM



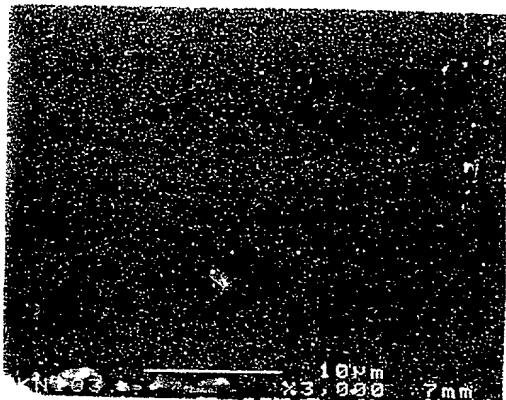
5mm



3mm

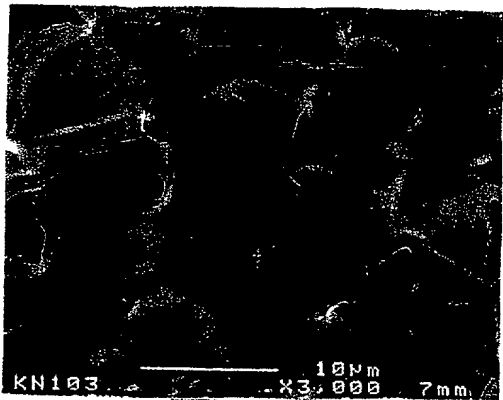


3mm



5mm

UPSTREAM



WELDED PART

[BACK SHIELD GAS :
0.5 % H₂/Ar]